



# Institute for Materials Science

UNCLASSIFIED

## IMS Distinguished Lecture Series



**Dr. Olle Eriksson**  
**Uppsala University - Sweden**

### **Applications of Dynamical Mean Field Theory to Correlated Electronic Structures**

**Wednesday, December 21, 2016**

**2:00 - 3:00 pm**

**MSL Auditorium (TA-03 - Bldg 1698 - Room A103)**

**Abstract:** In this presentation I will outline the essential features of dynamical mean field theory (DMFT) in connection to electronic structures of correlated electron systems. Examples of valence band spectra and x-ray absorption spectra will be given for transition metal oxides as well as f-electron systems. In addition to spectroscopic features I will present values of magnetic moments and magnetic exchange interactions, and discuss how DMFT improves on results obtained by effective one-electron theories. A multiscale approach of coupling electronic structure information to atomistic spin-dynamics will also be outlined, and examples of magnetization dynamics will be presented. Examples involve heat assisted magnetization reversal of Gd-Fe alloys.

**Bio:** Olle Eriksson received his PhD from Uppsala University 1989. After spending three years as a postdoc at Los Alamos National Lab, he returned to an Assistant Professor at Uppsala University, 1991. After a short visit as a visiting scientist in Los Alamos, 1996-1997, he became an Associate Professor 1997 and chair professor 1999. He is currently leading a research division of 90 scientists at Uppsala University. Prof. Eriksson has supervised 42 PhD students to examination and been the advisor of 26 postdocs. He has published some 600 scientific articles of which several are found in The Physical Review Letters, PNAS, Nature and Science. He has received several awards and distinctions for his work in theory of materials.

*His research ID is: [orcid.org/0000-0001-5111-1374](http://orcid.org/0000-0001-5111-1374)  
and <https://scholar.google.com/citations?user=ljb0QJIAAAAJ&hl=en>*

---

To be on Dr. Olle Eriksson's Agenda or for general information contact  
Caryll Blount \* [caryll@lanl.gov](mailto:caryll@lanl.gov) \* 665-3950

***Hosted by Alexander Balatsky \* Director of the Institute for Materials Science***